

The recommendations of the DOE Baseline Readiness Review have been extracted from the report of this review and listed below. Each recommendation is immediately followed by our response, indicated in *Italics*. In summary, we have accepted the recommendations of the committee, and have adjusted our cost and schedule estimates appropriately.

1.1.1.1 Schedule

Recommendations

1. Proceed with expeditious sensor procurement and continue to negotiate for increased sensor delivery rate.

This has always been our plan. The group has a plan to hold a production readiness review for silicon sensors in late November 2002.

2. Proceed with expeditious procurement of the second prototype SVX4 chip.

Since the review, the schedule for the chip submission has slipped. Currently, the Project manager attends the chip design meetings, and the progress will be closely monitored. Submission will occur as soon as possible.

3. Increase the schedule contingency from 150 working days to approximately 200 working days. This implies an end date in mid-June 2006.

This has been implemented into our current schedule. We have taken an end date of May 31, 2006, which corresponds to a schedule contingency of 44 weeks.

1.1.1.2 Manpower and Resources

Recommendation

1. Begin transfer and training of mechanical technicians as soon as is practical.

This will be done as appropriate.

1.1.1.3 Cost

Recommendations

1. Revise contingency estimates.

Contingency has been extensively revised. We have made the following set of changes at the lowest level in the WBS structure:

Contingency in custom data acquisition parts has been reduced from 100% to 50%.

Contingency on silicon sensors has been reduced from 30% to 10%. The cost risk on these items is thought to be small.

Contingency on labor has been reduced from 50% to 40%. This is the level needed to support overtime continuously. Experience has shown that a 50-hour work week can be sustained indefinitely. A 40% increase in cost supports this use of labor.

2. Increase base labor costs to reflect a realistic schedule.

Labor has been increased, particularly in the area of engineering, to reflect the longer schedule. Labor has also been added to the Administration schedule to reflect the added administrative costs of a longer project. There have been additional changes in the base cost due to corrections in the method used for calculating these costs. The cap on General and Administrative costs on procurements in excess of \$500K was not implemented in our estimates. This resulted in an overestimate on these costs. In addition, an error was made in the escalation of labor charges beyond FY 2002. The error also resulted in an overestimate of the costs.

The combination of changes made to the contingency and base cost have reduced our total cost by \$2415K, and our contingency is now 46% of our DOE equipment funds request.

1.1.1.5 Overall Recommendation

1. The project should be baselined with a schedule revised as described above.

The revised schedule will be used for the baseline proposal.

1.1.2.1 Preshower/Crack Calorimeter Upgrade

Recommendation

1. The project shows all signs of being well prepared, managed and their costs well estimated. There is no need for any changes to the current project.

1.1.2.2 Electromagnetic Timing

Recommendation

1. The funds of all items which will effectively have zero real cost to the project should be pulled out and listed separately so that its clear to anyone auditing the project that the items are really of zero cost, or the recycled items should be listed as having zero cost.

This has been done. The recycled items are now listed as having zero costs, although the tasks are still within the schedule. The “in kind” contribution from the university group providing the effort has also been removed. This has had no net impact on the cost.

1.1.3.1 TDC Replacement

Recommendations

1. Measure the timing characteristics of Altera Stratix FPGA TDC circuit as soon as possible and publish the results in an internal CDF technical document.

We agree, and will perform this test as soon as possible.

2. Secure the purchase of Altera Stratix FPGA chips early in the project to ensure that there are no procurement problems that would lead into delays of the fabrication stage.

We agree, and will make the purchases as soon as testing and fund availability make

this possible.

1.1.3.2 Level 2 trigger

Recommendations

1. Measure the latency of the processor component of this project and publish the results in an internal CDF technical memo. This should be done as soon as possible in order to alleviate any doubts as to whether a PC running a real time version of Linux can do the job.

We agree, and will perform this test as soon as possible.

1.1.3.4 Event Builder

Recommendation

1. Review in detail the change of technology schedule and ensure ample development time to integrate the system into the existing DAQ. This should be done if a decision is made to switch to a different technology.

We will perform a cost/benefits analysis on any possible technology in 2003. The technology that provides the best value will be used.

1.2.3 Recommendations

1. Consider reevaluation of the base costs and the contingency costs based on the comments provided by the Committee in this report.

This has been done, as described above.

2. Re-evaluate the schedule float based on the comments provided in this report.

This has been done, as described above.

1.3.3 Recommendations

1. Get written commitments (MOU's) for manpower and other contributions from collaborating institutions.

Negotiations for the MOUs are currently in progress.

2. Develop credible schedule taking into account the comments made by the Committee.

This has been done, as described above.

3. Re-evaluate base costs.

This has been done, as described above.

4. Re-examine contingency assignments.

This has been done, as described above.

5. Obtain guidance from DOE for project start date.

6. DOE should move forward expeditiously with the approval of CD-1, CD-2, and CD-3a (long-lead procurements) of the CDF Detector Upgrade project (after schedule and contingency issues are clarified).

Although this recommendation is not directed to the project, it highlights the problem faced by the project if approval is significantly delayed. We currently anticipate approval for construction in early calendar 2003. Our schedule requires equipment funds to be spent on various parts of the silicon detector in the winter and spring of 2003. The silicon sensors, a particularly long lead time item, will have their first large procurement made in early 2003. This procurement will be made by our collaborators from Japan, but we cannot expect the order to proceed if the project has not been approved.